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(71) Applicant and

(72) Inventor: BASSETT, Carroll [US/US]; HC68 Box 64B,  
Friars Hill, WV 24938 (US).

(74) Agent: HOLROYD, Mary-Jacq; Johnston, Holroyd &  
Associates, 1438 Main Street, Princeton, WV 24740 (US).

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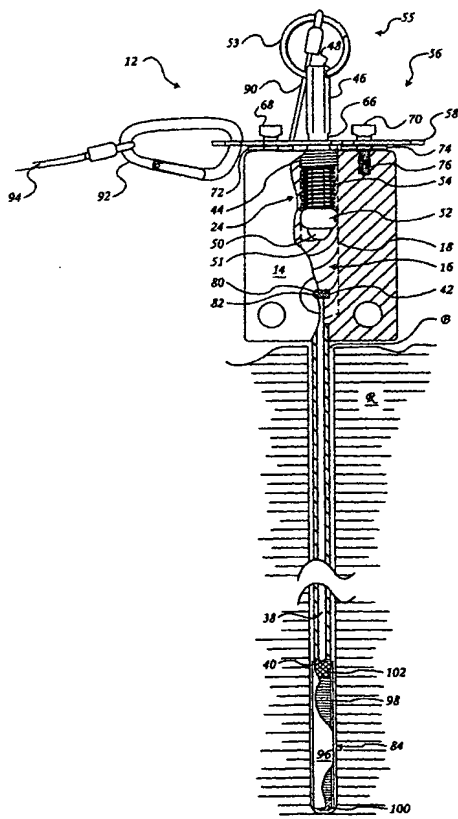
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(54) Title: HANDHELD TOOL FOR BREAKING UP ROCK



(57) Abstract: A tool (12) has a body (14) with a barrel (18) having oppos-  
ing threaded and fitted openings (30 and 28). An actuator pin tube (26), for  
slidably engaging an actuator pin (38) having a tip (40) opposing a retention  
head (42), extending from the fitted opening (30). A spring assembly (24),  
disposed in the barrel (18), has a hammer guide (44) engaged in the threaded  
opening (28) with a hammer (46) slidably engaged therein, a handle me-  
chanism (55) disposed at one end and a spring retainer (52) disposed adjacent  
the other end of the hammer (46) before a hammerhead (51), and a spring  
(54) engaged between the hammer guide (44) and the spring retainer (52).  
A release mechanism (56) engages the hammer (46). A kit (108) containing  
the tool (12) and a method of operating the tool (12) involving drilling and  
cleaning a borehole, inserting a cartridge and tool therein, and detonating  
the load remotely using a pull cord.



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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/23615

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : CO6C 7/00

US CL : 102/275.11, 319; 227/52; 299/13; 175/4.56

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 86/20.15; 102/312, 313, 318, 322, 275.11, 319; 227/52; 299/13; 175/2, 4.56; 89/1.15

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages          | Relevant to claim No. |
|------------|---|-----------------------|
| A          | US 4, 306, 628 A (ADAMS JR. ET AL) 22 December 1981<br>(22. 12. 1981) see entire disclosure | 1-20                  |
| A          | US 2, 257, 270 A (McCULLOUGH) 30 September 1941<br>(30. 09. 1941) see entire disclosure     | 1-20                  |
| A          | US 5, 474, 364 A (RUZZI ET AL.) 12 December 1995<br>(12. 12. 1995) see entire disclosure    | 1-20                  |

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Mail Stop PCT, Attn: ISA/US  
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Facsimile No. (703)305-3230

Authorized officer

Stephen M. Johnson

Telephone No. (703) 306-4158